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U.S. Patent 11,396,244

U.S. Patent 11,396,244 ("*Emerging Automotive*" or the "patent-at-issue") was filed on February 11, 2020 and has an earliest priority on April 22, 2011. Claim 1 of the patent-at-issue is generally directed to a method which involves a server in a cloud services system that interacts with vehicles. It starts by receiving a request from the vehicle's electronics to access a user account profile, using specific user information. The server then processes this information to verify the user's identity for accessing the profile, which contains various user settings for the vehicle. After verification, the server transfers selected settings from the profile to the vehicle, instructing the vehicle's software and/or hardware to apply these settings. These settings are used to customize the vehicle based on the user's preferences. This communication and transfer of settings between the vehicle and the cloud services system occur wirelessly.

The primary reference, U.S. Pat. App. 2011/0137520 ("*Hyundai*"), was filed on December 7, 2009, and claims priority on the same date. The patent is directed to a method of adapting a vehicle's allowed settings based on driver identification. In this approach, a smart vehicle captures a driver's unique identifier from their wireless device and uses it to access a database containing the driver's identity and settings managed by a controlling authority such as parents or employers. These settings can restrict specific vehicle features like speed control, radio usage, and wireless communication. Moreover, these settings might adjust based on the number or identities of passengers within the vehicle. This setup enables the vehicle's functions to be constrained based on the permitted settings associated with the driver.

A secondary reference, U.S. Patent 8,522,320 ("*Ford*"), was filed on April 1, 2011, and claims priority on the same date. The patent is directed to a method of authorizing the use of vehicle's communication and information system through various devices. The system comprises data processors responsible for multiple tasks. They receive data linking remote devices to a vehicle's computer and user identification tied to a request for controlling vehicle functions through these devices. These processors then authorize users to control the vehicle's functions through the associated devices. Once authenticated, the user gains command privileges over vehicle controls through these remote devices and the vehicle's computer. The authentication process can involve various inputs for validation, such as touch-based inputs, data from vehicle key transponders, voice commands, codes, patterns of maneuvers, or a question-and-answer process, often received within the vehicle.

A secondary reference, U.S. Patent 6,505,780 ("*Philips*"), was filed on December 5, 2001, and claims priority on the same date. The patent is directed to a method involving the use of Radio Frequency Identification (RFID) technology to personalize and adjust various vehicle components based on a user's preferences. Initially, the user is provided with an RFID tag containing machine-readable data related to their personalized settings for at least one adjustable part of the vehicle. When the RFID tag comes close to an RFID reader within the vehicle, the reader retrieves information from the tag. This information is then used to set the vehicle component(s) according to the user's preferences. This process repeats each adjustable component mentioned in the

information retrieved from the RFID tag. In addition, the settings might be updated on the RFID tag after the user finishes operating the vehicle, ensuring the tag carries the most recent preferences.

A secondary reference, U.S. Pat. App. 2007/0255464, was filed on April 26, 2006, and claims priority on the same date. The patent application describes a method of allowing multiple drivers to access a vehicle by scanning their fingerprint and triggering the vehicle's system to load their personalized settings. These settings range from seat arrangement and mirror positions to the vehicle's temperature and steering wheel adjustment. Moreover, the system can load personalized address lists for GPS navigation, individual phone directories, preferred music playlists, and even personalized email applications for each driver. By enabling drivers to maintain their distinct settings and personal lists within the vehicle's system, each driver can seamlessly utilize the vehicle as a unique and personalized user.

A sample claim chart comparing claim 1 of *Emerging Automotive* to *Hyundai*, *Ford*, *Philips*, and *Singh* is provided below.

US11396244 ("*Emerging Automotive*")	A. **US20110137520** (*"Hyundai"*) B. **US8522320** (*"Ford"*) C. **US6505780** (*"Philips"*) D. **US20070255464** (*"Singh"*)
1.pre. A method executed by **a server of a cloud services system that is configured to interface with vehicles**, comprising:	**A. US20110137520** "1. A system for controlling a driver's settings, the system comprising: **a network**; **a smart vehicle in communication with the network**; **a wireless communication device in communication with the smart vehicle**; **a settings server on the network**, the settings server including a user account for a user of the wireless communication device, the user account including permitted settings for the user; . . . ." *Hyundai* at claim 1 **B. US8522320** "In this illustrative embodiment, the centralized system is **a server system that includes processing capability for incoming nomadic device signals designated to interact with a remote vehicle** 121." *Ford* at col. 4:3-6 **C. US6505780** "1. A method of **programming one or more personalized settings of a user for adjustable components of a vehicle**, the method comprising the steps of . . . ." *Philips* at claim 1 "FIG. 1 is a schematic representation of a system for **personalizing vehicle settings, by using a communication device capable of communicating data to the vehicle** 1 in accordance with a preferred embodiment of the current invention." *Philips* at col. 5:6-10 "If the profile database is externally maintained, the **RFID reader of the vehicle** 1 **uploads** 3 **the driver identification information to a tag profile server over a communications channel. The communications channel** 4 **may be the over Internet** or any other communications network, including but not limited to cellular networks, radio networks, or the like which are well known in the art." *Philips* at col. 5:44-50

(cont.) 1.pre. A method executed by **a server of a cloud services system that is configured to interface with vehicles**, comprising:	**D. US20070255464** "The **vehicle in the current invention consists of an operating system which contains essential information about the drivers of the vehicle and for each driver maintains an individualized list of various utilities** like GPS address list, telephone list, music list, settings of the driver seat, temperature for each driver, positioning of mirrors **and personalized electronic mail server**." *Singh* at par. 0004 "The Electronic Mail tab shown by FIG. 7 will **allow the drivers to download electronic mails from their electronic mail service providers**. To download the electronic mails, the driver will select the Electronic mail tab on the Graphical User Interface. A part of screen will display the configuration settings for the electronic mail server including the electronic mail address of the user, the encrypted password for the electronic mail service and the address of the communicating protocols like POP3 address. The **Control Program will initiate an internet connection using the Wireless mode of connection**. Once the connection is established with the internet, the driver will have to hit the "DOWNLOAD" button on the screen. Once the identity of the electronic mail account is verified by the service provider's system the new electronic mails will be downloaded and displayed on the Graphical User Display." *Singh* at par. 0059
1.a. **receiving**, **by the server, a request from electronics of a vehicle to access a profile for a user account**, the **request identifies user information for a user to use the vehicle**;	**A. US20110137520** "11. A method for controlling a driver's settings, the method comprising: **requesting a unique identifier from a wireless communication device in communication with a smart vehicle**; . . . ." *Hyundai* at claim 11 "1. A system for controlling a driver's settings, the system comprising: . . . a settings server on the network, **the settings server including a user account for a user of the wireless communication device, the user account including permitted settings for the user**; a client logic on the smart vehicle to **retrieve a unique identifier from the wireless communication device** and transmit the unique identifier to the settings server; and a server logic on the settings server to **associate the unique identifier with the user account**, determine the permitted

(cont.) 1.a. **receiving**, **by the server, a request from electronics of a vehicle to access a profile for a user account**, the **request identifies user information for a user to use the vehicle**;	settings for the user, and transmit the permitted settings to the client logic, ...” *Hyundai* at claim 1 **B. US8522320** “1. A computer-implemented method for authorizing use of a vehicle communication and information system, the method comprising: receiving at one or more data processors **information indicating that a vehicle communications and information system (VCIS) is associated with a device from which one or more users commands the VCIS**, wherein **the information includes a registration code provided by a manufacturer to the one or more users and having been input into the device by the one or more users**; . . . **receiving an authorization request to command one or more vehicle controls from the device associated with the VCIS**; . . . .” *Ford* at claim 1 “In some embodiments, **the module information may be stored in memory at one or more of the nomadic device** 103, personal computer 105, or the remote computing system during, for example, registration. In this case, the module information may be received from memory. In some embodiments, **the module information may be an electronic serial number (ESN) associated with the module** 200. **This module information may be used to tie the user device (nomadic device** 103 **and/or personal computer** 105) **to the module** 200 so that data and information may be exchanged.” *Ford* at col. 7:4-13 **C. US6505780** “Another embodiment of the invention provides **an RFID tag containing identity information for the user**. Next **a profile database is queried to access a personal profile based upon the identity of the user as read from the RFID tag**. The **personal profile includes the personalized settings of the user for each component of the vehicle to be set during the setting step**. Then these settings are to configure each component of the vehicle to be set.” *Philips* at col. 3:10-17 “In another embodiment **the profile database is remotely located from the vehicle and operatively coupled to a receiver via a communication link**. In this embodiment **the querying step includes querying the profile database via the communication link**. The database may then a be updated

(cont.) 1.a. **receiving**, **by the server, a request from electronics of a vehicle to access a profile for a user account**, the **request identifies user information for a user to use the vehicle**;	with a more current personal profile of the user when operation of the vehicle is over." *Philips* at col. 3:18-24 **D. US20070255464** "2. The multiple wheel vehicle of claim 1 further comprising: a controller unit that controls the entire process of driver verification by **comparing the password entered by the driver on the said electronic keypad with the password in the vehicle database by means of an operating system and a software program installed on the said hard-drive; . . . ."** *Singh* at claim 2
1.b. **processing**, **by the server, at least part of the user information to verify the user for accessing the profile associated with the user account**, **the profile having a plurality of settings of the user for the vehicle**, **at least part of the plurality of settings for the profile being stored on storage accessible to the cloud services system**; and	**A. US20110137520** "1. A system for controlling a driver's settings, the system comprising: . . . a client logic on the smart vehicle to **retrieve a unique identifier from the wireless communication device** and transmit the unique identifier to the settings server; and **a server logic on the settings server to associate the unique identifier with the user account, determine the permitted settings for the user**, and transmit the permitted settings to the client logic, ..." *Hyundai* at claim 1 "In further embodiments of the present invention, **the settings may be stored on the driver's wireless communication device or on the memory of the smart vehicle**. . . The driver's wireless communications device would communicate with client logic of the smart vehicle and **create settings which are stored on the memory of the wireless communications device or the smart vehicle**." *Hyundai* at par. 0038 "A **client logic and processor on the smart vehicle compares the unique identifier with a set of unique identifiers stored on a memory of the smart vehicle**. Alternatively, the unique identifier may be compared with a set of unique identifiers on a server on a network. **With the identity of the driver determined, the smart vehicle looks up settings for the driver** S352. These **settings may include driver created settings, controlling authority settings, etc**. The **settings are determined by comparing the driver's identity with a database of identities with corresponding settings**. This **database may be on the network, on the**

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1.b. **processing**, **by the server, at least part of the user information to verify the user for accessing the profile associated with the user account**, **the profile having a plurality of settings of the user for the vehicle**, **at least part of the plurality of settings for the profile being stored on storage accessible to the cloud services system**; and | **driver's device, on the smart vehicle's memory**, etc." *Hyundai* at par. 0043

B. US8522320
"1. A computer-implemented method for authorizing use of a vehicle communication and information system, the method comprising:
. . .
comparing the registration code to information stored on the VCIS to authenticate the registration code;
. . .
based in least in part on the authentication of the registration code, providing the device with command of one or more vehicle controls; and
performing an authentication process using the associated device to authenticate the one or more users;
when authenticated based on the authentication process, enabling the one or more vehicle control commands from the device, wherein an authentication process includes initiating a timer to measure a time period during which the one or more users are authenticated using the identified authenticating devices, wherein the one or more users may command the VCIS from the one or more associated devices when authenticated during the time period." *Ford* at claim 1

"Use of the communications system 100 may be provided once a vehicle user is a registered user. Accordingly, **a vehicle user may register one or more devices (nomadic device** 103 **and/or personal computer** 105**) to use the communications system** 100 (block 300) **in order to gain access to various vehicle-based services from the nomadic device** 103 **and/or personal computer** 105. Examples of such vehicle-based services, without limitation, may include remote lock and unlock, remote start, vehicle tracking, remote control of vehicle controls (e.g., and without limitation, radio and HVAC), data download, and others." *Ford* at col. 5:66-67 through col. 6:1-9

C. US6505780
"In another embodiment **the profile database is remotely located from the vehicle and operatively coupled to a receiver via a communication link**. In this embodiment **the querying step includes querying the profile database via the communication link**. The database may then a be updated with a more current personal profile of the user when operation of the vehicle is over." *Philips* at col. 3:18-24 |

(cont.) 1.b. **processing**, **by the server,** **at least part of the user information to verify the user for accessing the profile associated with the user account**, **the profile having a plurality of settings of the user for the vehicle**, **at least part of the plurality of settings for the profile being stored on storage accessible to the cloud services system**; and	"Another embodiment of the invention provides **an RFID tag containing identity information for the user**. Next **a profile database is queried to access a personal profile based upon the identity of the user as read from the RFID tag**. The **personal profile includes the personalized settings of the user for each component of the vehicle to be set during the setting step.** Then **these settings are to configure each component of the vehicle to be set.**" *Philips* at col. 3:10-17 **D. US20070255464** "1. A multiple wheel vehicle comprising of: . . . **a hard drive to store the operating system, database, user profiles and multiple types of files related to different drivers of the vehicle**." *Singh* at claim 1 "2. The multiple wheel vehicle of claim 1 further comprising: a controller unit that controls the entire process of driver **verification by comparing the password entered by the driver on the said electronic keypad with the password in the vehicle database by means of an operating system and a software program installed on the said hard-drive**; . . . ." *Singh* at claim 2 "3. The said controller unit of claim 2 further containing: **a preferences loading program that contains a copy of the finger print impression of the driver, searches the said database on the said hard-drive for the vehicle preferences file name for the driver, the said preferences loading program loading the customized vehicle-seat settings, mirror settings, temperature settings, panel light settings and speaker settings for the driver**; . . . ." *Singh* at claim 3
1.c. **transferring, by the server, upon verifying the user information, one or more settings of the plurality of settings to the vehicle**, the **transferring is configured to instruct software and/or hardware associated with said electronics of the vehicle to apply said one or more settings to the vehicle for customizing said vehicle to use said one or more settings associated with the profile**,	**A. US20110137520** "1. A system for controlling a driver's settings, the system comprising: . . . a client logic on the smart vehicle to retrieve a unique identifier from the wireless communication device and **transmit the unique identifier to the settings server**; and **a server logic on the settings server to associate the unique identifier with the user account, determine the permitted settings for the user**, and **transmit the permitted settings to the client logic**,

(cont.) 1.c. **transferring, by the server, upon verifying the user information, one or more settings of the plurality of settings to the vehicle**, the **transferring is configured to instruct software and/or hardware associated with said electronics of the vehicle to apply said one or more settings to the vehicle for customizing said vehicle to use said one or more settings associated with the profile**,	wherein **the client logic limits functions of the smart vehicle based upon the permitted settings**.” *Hyundai* at claim 1 “. . . receiving the unique identifier from the wireless communication device and **determining an identity of a driver in possession of the wireless communication device based upon the unique identifier**; **referencing settings corresponding to the identity of the driver**; and **implementing the settings, wherein the settings are chosen by a controlling authority and include one or more of permitted speed settings, permitted radio settings, and permitted use of the wireless communication device**.” Hyundai at par. 0010 “**Settings server** 130 **includes settings for the driver that is associated with the unique identifier transmitted from wireless communication device** 120. The settings, at least in part, are set by a controlling authority, such as a parent or superior of the driver. The **settings may be set by the controlling authority through a web browser, by text message, by a dedicated application on the authority's wireless communication device, etc**. **Server logic** 132 **matches the driver's identity with corresponding settings from database** 134 **on settings server** 130. The settings may include driver created settings as well as controlling authority settings, such as parental controls, based upon the driver's identity. The **driver created settings may include seat and mirror positions, programmed radio stations, temperature controls, etc**. The **controlling authority settings may include a maximum speed of smart vehicle** 100, **radio controls, wireless communication device controls, passenger based controls, etc**.” *Hyundai* at par. 0031 “The maximum allowed speed of smart vehicle 100 may be set by the controlling authority. **For instance, a parent may not want his or her child to drive above seventy miles per hour**. The **parent uploads this setting to the settings server using a wireless communication device in communication with settings server** 130 **over network** 140, **using a personal computer in communication with the settings server** 130 **over network** 140, etc. **When smart vehicle** 100 **determines that the child is driving, smart vehicle** 100 **limits the maximum speed that smart vehicle** 100 **will travel**. This may be accomplished, for example, by using a speed governor on smart vehicle 100. Even if the child attempts to exceed the

(cont.) 1.c. **transferring, by the server, upon verifying the user information, one or more settings of the plurality of settings to the vehicle**, the **transferring is configured to instruct software and/or hardware associated with said electronics of the vehicle to apply said one or more settings to the vehicle for customizing said vehicle to use said one or more settings associated with the profile**,	maximum allowed speed, the speed governor will prevent this action." *Hyundai* at par. 0032 **B. US8522320** "1. A computer-implemented method for authorizing use of a vehicle communication and information system, the method comprising: . . . **when authenticated based on the authentication process, enabling the one or more vehicle control commands from the device**, wherein an authentication process includes initiating a timer to measure a time period during which the one or more users are authenticated using the identified authenticating devices, wherein the one or more users may command the VCIS from the one or more associated devices when authenticated during the time period." *Ford* at claim 1 "In some embodiments, **the applications may be located and executing on a remote computing system, such as server** 101 (or a different server in communication with system 100). **In this case, an application programming interface (API) may be installed on the nomadic device** 103 **and/or personal computer** 105 **and/or a web-based interface may be used in order to operate the remotely executing application**." *Ford* at col. 6:21-27 "The **relay to the vehicle** 121 **is sent out from the server(s)** 101 **through a network** (e.g., without limitation, a cellular network 113, the internet, etc.) **and passed through a cellular network** 115 **to the vehicle** 121. In another embodiment, the relay may be passed through network 114 (e.g., WiFi or WiMax) and to the vehicle 121. **A remote communication module** 200 **in the vehicle** 121 **receives the signal sent from the server(s)** 101 **and processes it or relays it to an appropriate processing system within the vehicle** 121." *Ford* at col. 4:24-32 **C. US6505780** "The **driver enters the vehicle** 1 **while carrying an RFID tag** 2. The **RFID tag is read by an RFID reader** 1A **associated with the vehicle** 1. This **information transfer may occur prior to the driver entering the vehicle** 1, or after the driver has entered the vehicle 1. RFID readers are well known and come in assorted sizes, shapes, configurations and power requirements (hence "range"), which allows for a variety of

(cont.) 1.c. **transferring, by the server, upon verifying the user information, one or more settings of the plurality of settings to the vehicle**, the **transferring is configured to instruct software and/or hardware associated with said electronics of the vehicle to apply said one or more settings to the vehicle for customizing said vehicle to use said one or more settings associated with the profile**,	placements of an RFID reader in association with a vehicle 1." *Philips* at col. 5:10-18 "Another embodiment of the invention provides **an RFID tag containing identity information for the user**. Next **a profile database is queried to access a personal profile based upon the identity of the user as read from the RFID tag**. The **personal profile includes the personalized settings of the user for each component of the vehicle to be set during the setting step**. Then **these settings are to configure each component of the vehicle to be set**." *Philips* at col. 3:10-17 **D. US20070255464** "2. The multiple wheel vehicle of claim 1 further comprising: . . . the said controller unit **comparing the finger impression provided by the driver with the finger impression in the vehicle database by means of said operating system and a software program**; . . . ." *Singh* at claim 2 "3. The said controller unit of claim 2 further containing: **a preferences loading program that contains a copy of the finger print impression of the driver, searches the said database on the said hard-drive for the vehicle preferences file name for the driver, the said preferences loading program loading the customized vehicle-seat settings, mirror settings, temperature settings, panel light settings and speaker settings for the driver**; . . . ." *Singh* at claim 3
1.d. wherein **the vehicle uses wireless communication for exchanging data with the cloud services system and for receiving said one or more settings for the profile**.	**A. US20110137520** "1. A system for controlling a driver's settings, the system comprising: **a network**; **a smart vehicle in communication with the network**; **a wireless communication device in communication with the smart vehicle**; **a settings server on the network, the settings server including a user account for a user of the wireless communication device, the user account including permitted settings for the user**; . . . ." *Hyundai* at claim 1 **B. US8522320** "For example, **the server(s)** 101 **may include an automated call server and/or web host**. Further, **the server(s)** 101 **may route an incoming signal from a nomadic device (ND)** 103

(cont.) 1.d. wherein **the vehicle uses wireless communication for exchanging data with the cloud services system and for receiving said one or more settings for the profile**.	**to the appropriate remote vehicle**. **Data sent in this fashion may be sent using data-over-voice, a data-plan, or in any other suitable format**." *Ford* at col. 4:7-12 "The **relay to the vehicle** 121 **is sent out from the server(s)** 101 **through a network (e.g., without limitation, a cellular network** 113, **the internet, etc.) and passed through a cellular network** 115 **to the vehicle** 121. **In another embodiment, the relay may be passed through network** 114 **(e.g., WiFi or WiMax) and to the vehicle** 121. **A remote communication module** 200 **in the vehicle** 121 **receives the signal sent from the server(s) 101 and processes it or relays it to an appropriate processing system within the vehicle** 121." *Ford* at col. 4:24-32 **C. US6505780** "The **driver enters the vehicle** 1 **while carrying an RFID tag** 2. The **RFID tag is read by an RFID reader** 1A **associated with the vehicle** 1. This **information transfer may occur prior to the driver entering the vehicle** 1, **or after the driver has entered the vehicle** 1. RFID readers are well known and come in assorted sizes, shapes, configurations and power requirements (hence "range"), which allows for a variety of placements of an RFID reader in association with a vehicle 1." *Philips* at col. 5:10-18 "The **communications channel** 4 **may be the over Internet or any other communications network**, including but not limited to cellular networks, radio networks, or the like which are well known in the art." *Philips* at col. 5:46-49 "The tag profile server receives the uploaded driver identification information and, using known software and hardware, executes a query of the profile database 7 to recover driver profile information 6. The **driver profile information** 6 **is then downloaded** 5 **to the vehicle** 1 **via the same or a different communications network, where it then is used to set the driver's vehicle preferences**." *Philips* at col. 5:50-56